UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,139	09/30/2003	Adrian P. Stephens	884.B29US1	6402

59796   7590   11/25/2008
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ART UNIT	PAPER NUMBER
2416	

MAIL DATE	DELIVERY MODE
11/25/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/676,139	STEPHENS ET AL.
	Examiner	Art Unit
	IAN N. MOORE	2416

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 August 2008*.
2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4,7-11,13,16-22,24,27-30,32,35-41,43,46,48 and 51* is/are pending in the application.
  4a) Of the above claim(s) *4,13,24,28,29,32,38,39,43 and 48* is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-2, 7-11, 16-22, 27, 30, 36, 37, 40, 41, 46* is/are rejected.
7)☒ Claim(s) *16,35 and 51* is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  a)☐ All b)☐ Some * c)☐ None of:
    1.☐ Certified copies of the priority documents have been received.
    2.☐ Certified copies of the priority documents have been received in Application No. _____.
    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   Applicant's arguments with respect to claims 1-2, 7-11, 16-22, 27, 30, 36, 37, 40, 41, 46

have been considered but are moot in view of the new ground(s) of rejection.

Regarding claim 1, 30, 40, and 46, the applicant argued that, "…Ho does not disclose

or suggest the limitation of transmitting both PDUs from the same device or of receiving both

PDU's by the same device…" in page 11-13.

In response to applicant's argument, the examiner respectfully disagrees with the

argument above.

As set forth in new grounds rejection blow, Ho's FIG. 3 and 5 clearly disclose that

"single" station is transmitting both split PDUs (see FIG. 4b and 4c) from two transmission lines

48 and 50.

Regarding claim 11 and 21, 30, 40, and, the applicant argued that, "…Boer say

nothing about transmitting two PDUs from the same device…a review of these passages

uncovers no mention of multiple data messages…" in page 12-13.

In response to applicant's argument, the examiner respectfully disagrees with the

argument above.

In response to applicant's arguments against the references individually, one cannot show

nonobviousness by attacking references individually where the rejections are based on

combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re*

Merck & Co., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case, Moreover, it is clear

to one skilled in the ordinary art the Boer's wireless LAN device transmits more than one PDU,

and no such wireless LAN device is designed and implemented so that it only a one PDU. Thus,

it is clear that more than one PDU is send from Boer wireless LAN device. Fischer also discloses

transmitting a first frame and second frame from the same wireless device 100. Thus, when

considering the combined system Boer and Fischer as a whole, it clearly disclosed the claimed

invention as detailed below.

Regarding claim 30 and 40, the applicant argued that, "…Fischer never mentions

anything about symbol boundaries in any context, much less a limitation on the time between

tow PDUs…" in page 13.

In response to applicant's argument, the examiner respectfully disagrees with the

argument above.

Ho discloses sending first split frame, then concurrently/at-the-same-time sending second

split frame with odd and even data in FIG. 4b-c as detailed set froth below. Fischer also discloses

sending the first frame, and then follows by the second frame at the next boundary as set forth

below. Thus, it is clear that the combined system of Ho and Fischer discloses the claimed

invention.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

3.   Claims 1, 2, 6, 7, 8, 30, 34, 36 and 37 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Ho (US 20030169769A1) in view of Fischer (US 20020089959A1).

Regarding claim 1, Ho discloses a method for performing (see FIG. 3,5, a wireless LAN

device 10/12 performing processes/method; see page 3, paragraph 36) comprising:

Transmitting from a wireless communication device (see FIG. 3,5 first wireless station

10/12 transmitting; see page 1, paragraph 7-10; see page 3, paragraph 36) a first protocol data

unit (see FIG. 4b, a first split data frame of MAC protocol data unit (MPDU); see page 1,

paragraph 9-11; page 3, paragraph 38-41) over an air interface (see FIG. 3, 5 over a wireless

medium between stations 10 and 12; see page 1, paragraph 7-10; see page 3, paragraph 36),

wherein the first protocol data unit includes

a first preamble (see FIG. 4b, a preamble 24) to enable a receiver to synchronize (see

FIG. 4b, preamble time/synchronize the receiving station 12/10; see page 1, paragraph 8-11;

page 3, paragraph 38; page 5, paragraph 53);

a first header (see FIG. 4b, a header 26), following the first preamble (see FIG. 4b, a

follows/next to the preamble 24; see page 1, paragraph 8-11; page 3, paragraph 38; page 5,

paragraph 53); and

a first service data unit (see FIG. 4b, data 28), following the first header (see FIG. 4,

follows/next to the header 26; see page 1, paragraph 8-11; see page 3, paragraph 38; page 5,

paragraph 53); and

transmitting from the wireless communication device (see FIG. 3, 5,wireless station

10/12 transmitting; see page 1, paragraph 7-10; see page 3, paragraph 36) a second protocol data

unit (see FIG. 4c, a second split data frame for MPDU; see page 1, paragraph 8-11; page 3,

paragraph 38-41) over the air interface (see FIG. 3, 5,over a wireless medium between stations

10 and 12; see page 1, paragraph 7-10; see page 3, paragraph 36) without an space (see FIG. 3,

4a-b, 5, concurrently" (i.e. at the same time with no space) via wireless links 48 and 50; see page

1, paragraph 10-11) between the first protocol data and the second protocol data unit (see FIG.

4b-c, between the first split data frame (i.e. even data) and the second split data frame (i.e. odd

data); see page 1, paragraph 8-11; page 3, paragraph 38-41)

the second protocol data unit includes a second preamble (see FIG. 4c, preamble 24; see

page 1, paragraph 8-11; see page 3, paragraph 38; page 5, paragraph 53),

a second header (see FIG. 4c, header 26), following the second preamble (see FIG. 4c

following preamble 24; see page 1, paragraph 8-11; page 3, paragraph 38; page 5, paragraph 53);

and

a second service data unit (see FIG. 4c, data 54), following the second header (see FIG.

4c, following header 26; see page 1, paragraph 8-11; see page 3, paragraph 38; page 5, paragraph

53).

Although Ho discloses transmitting "a space", Ho does not explicitly disclose an

"interframe" space.

However, Fischer teaches a method compring performing within a single wireless

communication device (see FIG. 1, wireless communication system 100) transmitting from the

wireless communication device a first protocol data unit (see FIG. 1, transmitting a first frame

from transceiver 103 of wireless communication system 100; see page 4, paragraph 25-26; see

page 20, paragraph 18) over an air interface (see FIG. 1, via wireless medium 106; see page 6,

paragraph 50), transmitting from the wireless communication device a second protocol data unit

(see FIG. 1, transmitting a second frame from transceiver 103 of wireless communication system

100; see page 5, paragraph 27; see page 20, paragraph 23) over the air interface (see FIG. 1, via

wireless medium 106; see page 6, paragraph 50) without an interframe space between the first

protocol data unit and the second protocol data unit (see FIG. 1; see page 6, paragraph 50; see

page 5, paragraph 27, 29-30; prior to expiration of interframe gap period between transmission of

the first frame and second frame (i.e. transmitting without a inter-frame gap period)).

Therefore, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to provide "an interframe space" as taught by Fischer in the system of

Ho, so that it would increase data throughput for selected application as suggested by Fischer;

see page 5, paragraph 27.

Regarding claim 2, Ho discloses said transmitting the second protocol data unit beings

in approximately at a next symbol boundary (see FIG. 4c, transmitting second split SDU is at

next/subsequent MSDU boundary/interval/slot) after an end of transmitting the first protocol data

unit (see FIG. 4b-c, after the first split MSDU; see page 1, paragraph 9-11; page 3, paragraph 38-

42).

Regarding Claim 7, Ho discloses the space is a time period (see FIG. 4b-c, space is the

time period/interval between two split frames; see page 1, paragraph 8-11).

Ho does not explicitly disclose <u>selected from a group of time periods consisting of</u>

<u>including</u> "a short interframe space".

However, Fischer also discloses wherein the interframe space is a time period selected

from a group of time periods consisting of including a short interframe space (see page 5,

paragraph 27; see page 9, paragraph 68; inter-frame gap period/time is short inter-frame space

period).

Therefore, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to provide "a short interframe space" as taught by Fischer in the system

of Ho, so that it would increase data throughput for selected application as suggested by Fischer;

see page 5, paragraph 27.

Regarding Claim 8, Ho discloses the header includes a physical device header (see FIG.

3,4b-c, a header 26 is the header of the PHY device; see page 1, paragraph 8-11; page 3,

paragraph 38; page 5, paragraph 53).

Regarding claim 30, Ho discloses an apparatus (see FIG. 5, Station 100/102; also see

FIG. 3, Station 10/12) comprising:

a medium access control device (see FIG. 3, 5, MAC 106), which receive multiple data

units from a physical device (see FIG. 3, 5, MAC 106 receives MAC protocol data unit (MSDU)

frames from PHY 108; see page 1, paragraph 7-11; see page 3, paragraph 36-38); and

the physical device (see FIG. 3, 5, PHY 108), coupled to the medium access control

device (see FIG. 3, 5, PHY 108 couples/connects to MAC 106), the physical device to receive a

first protocol data unit (see FIG. 4b, receiving a first split data frame of MAC protocol data unit

(MPDU); see page 1, paragraph 9-11; page 3, paragraph 38-41; see page 3, paragraph 38-41)

over an air interface (see FIG. 3, 5 over a wireless medium between stations 10 and 12; see page

1, paragraph 7-10; see page 3, paragraph 36wherein the first protocol data unit includes

a first preamble (see FIG. 4b, a preamble 24) to enable a receiver to synchronize (see FIG. 4b, preamble time/synchronize the receiving station 12/10; see page 1, paragraph 8-11; page 3, paragraph 38; page 5, paragraph 53);

a first header (see FIG. 4b, a header 26), following the first preamble (see FIG. 4b, a follows/next to the preamble 24; see page 1, paragraph 8-11; page 3, paragraph 38; page 5, paragraph 53); and

a first service data unit (see FIG. 4b, data 28), following the first header (see FIG. 4, follows/next to the header 26; see page 1, paragraph 8-11; see page 3, paragraph 38; page 5, paragraph 53); and

receive a second protocol data unit (see FIG. 3, 5, 4b, receiving a second split data frame for MPDU; see page 1, paragraph 7-11; see page 1, paragraph 9-11; page 3, paragraph 36-41) over the air interface (see FIG. 3, 5,over a wireless medium between stations 10 and 12; see page 1, paragraph 7-10; see page 3, paragraph 36), wherein the second protocol data unit is to begin at next boundary (see FIG. 3,4c,5, second split MSDU (i.e. with odd data) starts/beings concurrently at next interval/boundary) after an end of said receiving the first protocol data unit (see FIG. 3,4b-c,5, after the end of receiving the first split MSDU (i.e. with even data); see page 1, paragraph 8-11; page 3, paragraph 38-42);

wherein the second protocol data unit includes (see FIG. 4c; second split MSDU includes):

a second preamble (see FIG. 4c, preamble 24; see page 1, paragraph 8-11; see page 3, paragraph 38; page 5, paragraph 53)

a second header (see FIG. 4c, header 26), following the second preamble (see FIG. 4c

following preamble 24; see page 1, paragraph 8-11; page 3, paragraph 38; page 5, paragraph 53

and

a second service data unit (see FIG. 4c, data 54), following the second header (see FIG.

4c, following header 26; see page 1, paragraph 8-11; see page 3, paragraph 38; page 5, paragraph

53).

Although Ho discloses begin at a "next boundary" after an end

Ho does not explicitly disclose being at a next "symbol" boundary.

However, Fischer teaches an apparatus (see FIG. 1, wireless communication system 100)

receiving a first protocol data unit (see FIG. 1, receiving a first frame; see page 4, paragraph 25-

26; see page 20, paragraph 18; note that transceiver 103 has both transmit and receive

capabilities) over an air interface (see FIG. 1, via wireless medium 106; see page 6, paragraph

50), receiving by the wireless communication device a second protocol data unit (see FIG. 1,

receiving a second frame at transceiver 103 of wireless communication system 100; see page 5,

paragraph 27; see page 20, paragraph 23) over the air interface (see FIG. 1, via wireless medium

106; see page 6, paragraph 50), wherein the second protocol data unit is begin at a next symbol

boundary after an end of transmitting the first protocol data unit (see page 5, paragraph 27, 29-

30; second frame is received at next time period after the end of transmitting (from transmitter) a

first frame, that is, prior to expiration of interframe gap period after transmission of the first

frame).

Therefore, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to provide "next symbol boundary" as taught by Fischer in the system of

Ho, so that it would increase data throughput for selected application as suggested by Fischer; see page 5, paragraph 27.

Regarding Claim 36, Ho discloses the space is a time period (see FIG. 4b-c, space is the time period/interval between two split frames; see page 1, paragraph 8-11).

Ho does not explicitly disclose <u>selected from a group of time periods consisting of including</u> "a short interframe space".

However, Fischer also discloses wherein the interframe space is a time period selected from a group of time periods consisting of including a short interframe space (see page 5, paragraph 27; see page 9, paragraph 68; inter-frame gap period/time is short inter-frame space period).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide "a short interframe space" as taught by Fischer in the system of Ho, so that it would increase data throughput for selected application as suggested by Fischer; see page 5, paragraph 27.

Regarding Claim 37, Ho discloses the header includes a physical device header (see FIG. 3,4b-c, a header 26 is the header of the PHY device; see page 1, paragraph 8-11; page 3, paragraph 38; page 5, paragraph 53).

4.   Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ho in view of Fischer, and further in view of Oura (US 20050073960A1).

Regarding Claim 9, neither Ho nor Fischer explicitly discloses "the first modulation rate is in a range of approximately 6 to 12 megabits per second".

However, having the modulation rate is in a range of approximately 6 to 12 megabits per second is well know and established in the art as IEEE 802.11. In particular, Oura teaches the first modulation rate is in a range of approximately 6 to 12 megabits per second (see FIG. 2, modulation rate BPSK with 6 Mbps; see page 1, paragraph 5-6).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide "the first modulation rate is in a range of approximately 6 to 12 megabits per second", as taught by Oura in the combined system of Ho and Fischer, so that it would provide precisely deciding the transfer rate for optimization; see Oura page 1, paragraph 7, 9; see page 2, paragraph 26-17.

5.   Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ho in view of Fischer, and further in view of Boer (U.S. 5,706,428).

Regarding Claim 10, neither Ho nor Fischer explicitly discloses "the second modulation rate is in a range of approximately 6 to 240 megabits per second".

However, Boer teaches the second modulation rate is in a range of approximately 6 to 240 megabits per second (see col. 3, line 56-65; the modulation rate for data is 8 Mbps).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide "the second modulation rate is in a range of approximately 6 to 240 megabits per second", as taught by Boer in the combined system of Ho and Fischer, so that it would enable communication between station operating at different data rates; see Boer col. 1, line 28-47.

6.   Claims 11, 15, 17, 18, 20, 21, 22, 26, 27, 41, 46, and 50 are rejected under 35 U.S.C.

103(a) as being unpatentable over Boer (US 5,706,428) in view of Fischer.

Regarding Claim 11, Boer discloses a method comprising performing operations (see

FIG. 2-3, a wireless LAN station 18/22 processing the steps/method) comprising:

Receiving, by a wireless communications device (see FIG. 2-3, receiving at a wireless

LAN station 18/22), a first protocol data unit (see FIG. 4, data message) over an air interface (see

FIG. 1-3, RF receiver 52/152 receiving data message over the wireless communication channel;

see col. 2, line 5-20; see col. 3, line 1-40), wherein the first protocol data unit includes

a first preamble (see FIG. 4, preamble 216), to enable a receiver (see FIG. 1-3, RF

receiver 52/152) to synchronize (see col. 3, paragraph 41-65; see col. 6, line 45 to col. 7, line 7;

preamble times/synchronize the receiver 52/152 since preamble contains SYNC field 202), and

which is received at a first modulation rate (see col. 3, line 55-60; preamble is received at 1

Mpbs using DBPSK modulation);

a first header (see FIG. 4, header 21), following the first preamble (see FIG. 4, header

218 follows preamble 216), which is received at the first modulation rate (see col. 3, line 55-60;

header is received at 1 Mpbs using DBPSK modulation); and

the first service data unit (see FIG. 4, Data 214), following the first header (see FIG. 4,

data 214 follows header 218), which is received at a second modulation rate (see col. 3, line 55-

65; abstract; data is received at 8 Mbps rates using PPM/DQPSK);

receiving, by the wireless communications device (see FIG. 2-3, receiving at a wireless

LAN station 18/22), a second protocol data unit over the air interface (see FIG. 1-3, RF receiver

52/152 receiving subsequent/next/second data message over the wireless communication

channel; note that more than one data message are transmitted and received; see col. 2, line 5-25;

see col. 3, line 1-40);

the second protocol data unit (note that more than one data message are transmitted and

received; see col. 2, line 5-25) includes:

a second preamble (see FIG. 4, preamble 216 of next/subsequent message), which is

received at the first modulation rate (see col. 3, line 55-60; preamble is received at 1 Mpbs using

DBPSK modulation);

a second header (see FIG. 4, header 21 of next/subsequent message), following the

second preamble (see FIG. 4, header 218 follows preamble 216 of next/subsequent message),

which is received at the third modulation rate (see col. 3, line 55-60; header is received at 1

Mbps using DBPSK modulation).

a second service data unit (see FIG. 4, Data 214 of next/subsequent message), following

the first header (see FIG. 4, data 214 follows header 218 of next/subsequent message), which is

received at a third modulation rate (see col. 3, line 55-65; abstract; data is received at 2 Mbps

rates using PPM/DQPSK).

Boer does not explicitly disclose "before expiration of an interframe space".

However, Fischer teaches a method comprising performing within a single wireless

communication device (see FIG. 1, wireless communication system 100) receiving by the

wireless local area network device, a first protocol data unit (see FIG. 1, receiving a first frame

by transceiver 103 of wireless communication system 100 ; see page 4, paragraph 25-26; see

page 20, paragraph 18; note that transceiver 103 has both transmit and receive capabilities) over

an air interface (see FIG. 1, via wireless medium 106; see page 6, paragraph 50), receiving by

the wireless local area network device, a second protocol data unit (see FIG. 1, receiving at the

transceiver 103 of wireless communication system 100 a second frame; see page 5, paragraph

27; see page 20, paragraph 23) over the air interface (see FIG. 1, via wireless medium 106; see

page 6, paragraph 50) before expiration of an interfame space (see page 5, paragraph 27, 29-30;

prior to expiration of interframe gap period after transmission of the first frame).

Therefore, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to provide "before expiration of an interframe space" as taught by

Fischer in the system of Ho, so that it would increase data throughput for selected application as

suggested by Fischer; see page 5, paragraph 27.

Regarding Claim 17, Boer discloses interframe space is a time period selected from a

group of time periods consisting of including a short interframe space (see col. 4, line 30-35;

interframe spacing time is a short interframe spacing time). Fischer also discloses wherein the

interframe space is a time period selected from a group of time periods consisting of including a

short interframe space (see page 5, paragraph 27; see page 9, paragraph 68; inter-frame gap

period/time is short inter-frame space period).

Regarding Claim 18, Boer discloses the header includes a physical device header (see

col. 3, line 40-55; header 218 is the header for a combined physical device header).

Regarding Claim 20, Boer teaches the second modulation rate is in a range of

approximately 6 to 240 megabits per second (see col. 3, line 56-65; the modulation rate for data

is 8 Mbps).

Regarding Claim 21, Boer discloses an apparatus (see FIG. 2-3, a wireless LAN station

18/22) comprising:

a medium access control device (see FIG. 2-3, MAC control 30/130), which is operable

to provide multiple data units (see FIG. 2-3, transmitting data messages) destined for at least one

receiver (see FIG. 2-3, for RF receiver 52/152) to a physical device (see FIG. 2-3, to a combined

system of physical unit RF transmitter 50/150, spreader 48/148 and encoder 48/146 for

transmission); see col. 2, line 63 to col. 3, line 40); and

the physical device, coupled to the medium access control device (see FIG. 2-3, a

combined system of physical device is connected with MAC 30/130), which is to transmit a first

protocol data unit (see FIG. 4, transmitting data message) over an air interface (see FIG. 1-3, RF

transmitting 50/150 transmit data message over the wireless communication channel; see col. 2,

line 5-20; see col. 3, line 1-40), wherein the first protocol data unit includes

a first preamble (see FIG. 4, preamble 216), to enable a receiver (see FIG. 1-3, RF

receiver 52/152) to synchronize (see col. 3, paragraph 41-65; see col. 6, line 45 to col. 7, line 7;

preamble times/synchronize the transmitter 50/150 since preamble contains SYNC field 202),

and which the physical device is to transmit at a first modulation rate (see col. 3, line 55-60;

preamble is transmit at 1 Mpbs using DBPSK modulation);

a first header (see FIG. 4, header 21), following the first preamble (see FIG. 4, header

218 follows preamble 216), which the physical device is to transmit at the first modulation rate

(see col. 3, line 55-60; header is transmitted by the combined physical unit at 1 Mpbs using

DBPSK modulation); and

the first service data unit (see FIG. 4, Data 214), following the first header (see FIG. 4,

data 214 follows header 218), which the physical device is to transmit at a second modulation

rate (see col. 3, line 55-65; abstract; data is transmitted by the combined physical unit at 1/2/5/8

Mbps rates using PPM/DQPSK);

transmit a second protocol data unit over the air interface (see FIG. 1-3, RF transmitter

50/150 transmits subsequent/next/second data message over the wireless communication channel

; note more than one data message are transmitted and received; see col. 2, line 5-25; see col. 3,

line 1-40);

the second protocol data unit (note that more than one data message are transmitted and

received; see col. 2, line 5-25) includes:

a second preamble (see FIG. 4, preamble 216 of next/subsequent message), which the

physical device is to transmit at the first modulation rate (see col. 3, line 55-60; preamble is

transmits by the combined physical unit at 1 Mpbs using DBPSK modulation);

a second header (see FIG. 4, header 21 of next/subsequent message), following the

second preamble (see FIG. 4, header 218 follows preamble 216 of next/subsequent message),

wherein the physical device is to transmit at the third modulation rate (see col. 3, line 55-60;

header is transmitted by the combined physical unit at 1 Mbps using DBPSK modulation).

a second service data unit (see FIG. 4, Data 214 of next/subsequent message), following

the first header (see FIG. 4, data 214 follows header 218 of next/subsequent message), which the

physical device is to transmit at a third modulation rate (see col. 3, line 55-65; abstract; data is

transmitted by a combined system of physical unit at 2 Mbps rates using PPM/DQPSK).

Boer does not explicitly disclose "without an interframe space between the first protocol

data unit and the second protocol data unit".

However, Fischer teaches a method comprising performing within a single wireless communication device (see FIG. 1, wireless communication system 100) transmit a first protocol data unit (see FIG. 1, transmit a first frame; see page 4, paragraph 25-26; see page 20, paragraph 18; note that transceiver 103 has both transmit and receive capabilities) over an air interface (see FIG. 1, via wireless medium 106; see page 6, paragraph 50), transmit a second protocol data unit (see FIG. 1, transmit a second frame; see page 5, paragraph 27; see page 20, paragraph 23) over the air interface (see FIG. 1, via wireless medium 106) without an interface space between first protocol data unit and the second protocol data unit (see FIG. 1; see page 6, paragraph 50; see page 5, paragraph 27, 29-30; prior to expiration of interframe gap period between transmission of the first frame and second frame (i.e. transmitting without a inter-frame gap period)).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide "without an interframe space between the first protocol data unit and the second protocol data unit" as taught by Fischer in the system of Boer, so that it would increase data throughput for selected application as suggested by Fischer; see page 5, paragraph 27.

Regarding claim 22, Boer discloses the physical device (see FIG. 2-3, to a combined system of physical unit RF transmitter 50/150, spreader 48/148 and encoder 48/146 for transmission); see col. 2, line 63 to col. 3, line 40) is further operable to transmit the second protocol unit (see FIG. 1-3, the combined physical unit transmits subsequent/next/second data message over the wireless communication channel; note more than one data message are transmitted and received; see col. 2, line 5-25; see col. 3, line 1-40).

Boer does not explicitly disclose "beings at a next symbol boundary after an end of transmitting the first protocol data unit".

However, Fischer teaches transmit the second protocol data unit is being in approximately at a next symbol boundary after an end of transmitting the first protocol data unit (see page 5, paragraph 27, 29-30; second frame is received at next time period after the end of transmitting (from transmitter) a first frame, that is, prior to expiration of interframe gap period after transmission of the first frame).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide "at a next symbol boundary" as taught by Fischer in the system of Boer, so that it would increase data throughput for selected application as suggested by Fischer; see page 5, paragraph 27.

Regarding Claim 27, Boer discloses interframe space is a time period selected from a group of time periods consisting of including a short interframe space (see col. 4, line 30-35; interframe spacing time is a short interframe spacing time). Fischer also discloses wherein the interframe space is a time period selected from a group of time periods consisting of including a short interframe space (see page 5, paragraph 27; see page 9, paragraph 68; inter-frame gap period/time is short inter-frame space period).

Regarding Claim 46, Boer discloses a computer-readable medium (see FIG. 2-3, management state machine stores the data in the table, M-MST 34)) having program instructions stored thereon to perform a method (see col. 1, line 10-15; see col. 4, line 62-67; see col. 5, line 10-15; see col. 6, line 10-15, 45-50; see col. 7, line 10-16; storing the data to excluded in method flow), which when executed (see FIG. 2-3, a wireless LAN station 18/22), result in:

Receiving, by a wireless local area network device (see FIG. 2-3, receiving a wireless LAN station 18/22), a first protocol data unit (see FIG. 4, data message) over an air interface (see FIG. 1-3, RF receiver 52/152 receiving data message over the wireless communication channel; see col. 2, line 5-20; see col. 3, line 1-40), wherein the first protocol data unit includes

a first preamble (see FIG. 4, preamble 216), to enable a receiver (see FIG. 1-3, RF receiver 52/152) to synchronize (see col. 3, paragraph 41-65; see col. 6, line 45 to col. 7, line 7; preamble times/synchronize the receiver 52/152 since preamble contains SYNC field 202), and which is received at a first modulation rate (see col. 3, line 55-60; preamble is received at 1 Mpbs using DBPSK modulation);

a first header (see FIG. 4, header 21), following the first preamble (see FIG. 4, header 218 follows preamble 216), which is received at the first modulation rate (see col. 3, line 55-60; header is received at 1 Mpbs using DBPSK modulation); and

the first service data unit (see FIG. 4, Data 214), following the first header (see FIG. 4, data 214 follows header 218), which is received at a second modulation rate (see col. 3, line 55-65; abstract; data is received at 1/2/5/8 Mbps rates using PPM/DQPSK);

receiving (see FIG. 2-3, receiving at a wireless LAN station 18/22), a second protocol data unit over the air interface (see FIG. 1-3, RF receiver 52/152 receiving subsequent/next/second data message over the wireless communication channel; note more than one data message are transmitted and received; see col. 2, line 5-25; see col. 3, line 1-40);

the second protocol data unit (note that more than one data message are transmitted and received; see col. 2, line 5-25) includes:

a second preamble (see FIG. 4, preamble 216 of next/subsequent message), which is

received at the first modulation rate (see col. 3, line 55-60; preamble is received at 1 Mpbs using

DBPSK modulation);

a second header (see FIG. 4, header 21 of next/subsequent message), following the

second preamble (see FIG. 4, header 218 follows preamble 216 of next/subsequent message),

which is received at the third modulation rate (see col. 3, line 55-60; header is received at 1

Mbps using DBPSK modulation).

a second service data unit (see FIG. 4, Data 214 of next/subsequent message), following

the first header (see FIG. 4, data 214 follows header 218 of next/subsequent message), which is

received at a third modulation rate (see col. 3, line 55-65; abstract; data is received at 2 Mbps

rates using PPM/DQPSK).

Boer does not explicitly disclose "without an interframe space between the first protocol

data unit and the second protocol data unit".

However, Fischer teaches performing within a single wireless communication device (see

FIG. 1, wireless communication system 100) receiving by the wireless local area network

device, a first protocol data unit (see FIG. 1, receiving a first frame at the transceiver 103 of

wireless communication system 100; see page 4, paragraph 25-26; see page 20, paragraph 18;

note that transceiver 103 has both transmit and receive capabilities) over an air interface (see

FIG. 1, via wireless medium 106; see page 6, paragraph 50), receiving by the wireless local area

network device, a second protocol data unit (see FIG. 1, receiving a second frame at the

transceiver 103 of wireless communication system 100 ; see page 5, paragraph 27; see page 20,

paragraph 23) over the air interface (see FIG. 1, via wireless medium 106) without an interface

space between first protocol data unit and the second protocol data unit (see FIG. 1; see page 6,

paragraph 50; see page 5, paragraph 27, 29-30; prior to expiration of interframe gap period

between transmission of the first frame and second frame (i.e. transmitting without a inter-frame

gap period)).

Therefore, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to provide "without an interframe space between the first protocol data

unit and the second protocol data unit" as taught by Fischer in the system of Boer, so that it

would increase data throughput for selected application as suggested by Fischer; see page 5,

paragraph 27.

Regarding claim 41, Boer discloses said receiving the second protocol data unit after an

end of the first protocol data unit (see FIG. 1, 3, the combined physical unit receives

subsequent/next/second data message over the wireless communication channel after receiving

the first data message; note that more than one data message are transmitted and received; see

col. 2, line 5-25; see col. 3, line 1-40).

Boer does not explicitly disclose "in approximately at a next symbol boundary".

However, Fischer teaches receiving a first protocol data unit (see FIG. 1, transmitting a

first frame; see page 4, paragraph 25-26; see page 20, paragraph 18; note that transceiver 103 has

both transmit and receive capabilities) over an air interface (see FIG. 1, via wireless medium

106; see page 6, paragraph 50), receiving a second protocol data unit (see FIG. 1, receiving a

second frame; see page 5, paragraph 27; see page 20, paragraph 23) over the air interface (see

FIG. 1, via wireless medium 106; see page 6, paragraph 50), wherein the second protocol data

unit is being in approximately at a next symbol boundary after an end of said receiving the first

protocol data unit (see page 5, paragraph 27, 29-30; second frame is received at next time period

after the end of transmitting (from transmitter) a first frame, that is, prior to expiration of

interframe gap period after transmission of the first frame).

Therefore, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to provide "in approximately at a next symbol boundary" as taught by

Fischer in the system of Boer, so that it would increase data throughput for selected application

as suggested by Fischer; see page 5, paragraph 27.

7.   Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boer and Fischer,

and further in view of Oura (US 20050073960A1).

Regarding Claim 19, Boer discloses the first modulation rate is 1 megabits per second

(see col. 3, line 55-60).

Neither Boer nor Fischer explicitly discloses "a range of approximately 6 to 12 megabits

per second".

However, having the modulation rate is in a range of approximately 6 to 12 megabits per

second is well know and established in the art as IEEE 802.11. In particular, Oura teaches the

first modulation rate is in a range of approximately 6 to 12 megabits per second (see FIG. 2,

modulation rate BPSK with 6 Mbps; see page 1, paragraph 5-6).

Therefore, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to provide the first modulation rate is in a range of approximately 6 to 12

megabits per second, as taught by Oura in the combined system of Boer and Fischer, so that it

would provide precisely deciding the transfer rate for optimization; see Oura page 1, paragraph

7, 9; see page 2, paragraph 26-17.

8.   Claims 40 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ho in

view of Fischer and Lu (US006694134B1).

   Regarding claim 40, Ho discloses perform a method, which when executed result in

operations (see FIG. 3,5, a wireless LAN device 10/12 performing processes/method)

comprising:

   Transmitting from a wireless local area network device (see FIG. 3,5 first wireless station

10/12 transmitting; see page 1, paragraph 7-10; see page 3, paragraph 36) a first protocol data

unit (see FIG. 4b, a first split data frame of MAC protocol data unit (MPDU); see page 1,

paragraph 9-11; page 3, paragraph 38-41) over an air interface (see FIG. 3, 5 over a wireless

medium between stations 10 and 12; see page 1, paragraph 7-10; see page 3, paragraph 36),

wherein the first protocol data unit includes

   a first preamble (see FIG. 4b, a preamble 24) to enable a receiver to synchronize (see

FIG. 4b, preamble time/synchronize the receiving station 12/10; see page 1, paragraph 8-11;

page 3, paragraph 38; page 5, paragraph 53);

   a first header (see FIG. 4b, a header 26), following the first preamble (see FIG. 4b, a

follows/next to the preamble 24; see page 1, paragraph 8-11; page 3, paragraph 38; page 5,

paragraph 53); and

a first service data unit (see FIG. 4b, data 28), following the first header (see FIG. 4,

follows/next to the header 26; see page 1, paragraph 8-11; see page 3, paragraph 38; page 5,

paragraph 53); and

transmitting from a wireless local area network device a second protocol data unit (see

FIG. 3,5 first wireless station 10/12 transmitting second split data frame for MPDU; see page 1,

paragraph 7-11; see page 1, paragraph 9-11; page 3, paragraph 36-41) over the air interface (see

FIG. 3, 5,over a wireless medium between stations 10 and 12; see page 1, paragraph 7-10; see

page 3, paragraph 36), the second protocol data unit to begin approximately at next boundary

(see FIG. 3,4c,5, second split MSDU (i.e. with odd data) starts/beings concurrently at next

interval/boundary) after an end of the first protocol data unit (see FIG. 3,4b-c,5, after the end of

receiving the first split MSDU (i.e. with even data); see page 1, paragraph 8-11; page 3,

paragraph 38-42);

the second protocol data unit includes a second preamble (see FIG. 4c, preamble 24; see

page 1, paragraph 8-11; see page 3, paragraph 38; page 5, paragraph 53),

a second header (see FIG. 4c, header 26), following the second preamble (see FIG. 4c

following preamble 24; see page 1, paragraph 8-11; page 3, paragraph 38; page 5, paragraph 53);

and

a second service data unit (see FIG. 4c, data 54), following the second header (see FIG.

4c, following header 26; see page 1, paragraph 8-11; see page 3, paragraph 38; page 5, paragraph

53).

Although Ho discloses begin at a "next boundary" after an end

Ho does not explicitly disclose being at a next "symbol" boundary.

However, Fischer teaches transmitting from a wireless local area network device a first

protocol data unit (see FIG. 1, transmitting a first frame from transceiver 103 of wireless

communication system 100; see page 4, paragraph 25-26; see page 20, paragraph 18; note that

transceiver 103 has both transmit and receive capabilities) over an air interface (see FIG. 1, via

wireless medium 106; see page 6, paragraph 50), transmitting from a wireless local area network

device a second protocol data unit (see FIG. 1, transmitting a second frame from transceiver 103

of wireless communication system 100; see page 5, paragraph 27; see page 20, paragraph 23)

over the air interface (see FIG. 1, via wireless medium 106; see page 6, paragraph 50), wherein

the second protocol data unit is being in approximately at a next symbol boundary after an end of

the first protocol data unit (see page 5, paragraph 27, 29-30; second frame is transmitted at next

time period after the end of transmitting a first frame, that is, prior to expiration of interframe

gap period after transmission of the first frame).

Therefore, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to provide "next symbol boundary" as taught by Fischer in the system of

Ho, so that it would increase data throughput for selected application as suggested by Fischer;

see page 5, paragraph 27.

Neither Ho nor Fischer explicitly discloses "a computer-readable medium having

program instructions stored thereon to".

However, a wireless LAN device comprising a computer-readable medium having

program instructions stored thereon to so well known in the art. In particular, Lu teaches a

wireless LAN node comprising a computer-readable medium having program instructions (see

col. 2, line 40-65; col. 6, line 35-52; see col. 7, line 50-60; wireless LAN device having a

computer readable medium storing the computer programs).

Therefore, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to provide a computer-readable medium having program instructions

stored thereon to, as taught by Lu the combined system of Ho and Fischer, so that it would

perform method steps; Lu see col. 2, line 56-65. Also, it would have been obvious to one having

ordinary skill in the art at the time the invention was made to provide memory or storage

medium taught by Lu since memory or storage medium is required in order to execute or

perform the method(s) of the combined system of Ho and Fischer.

Allowable Subject Matter

9.   **Claim 16, 35 and 51** are objected to as being dependent upon a rejected base claim, but

would be allowable if rewritten in independent form including all of the limitations of the base

claim and any intervening claims.

10.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to IAN N. MOORE whose telephone number is (571)272-3085.

The examiner can normally be reached on 9:00 AM- 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, William Trost can be reached on 571-272-7872. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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